WASHINGTON DEPARTMENT OF ECOLOGY

RESPONSE TO PUBLIC COMMENTS

PHILLIPS 66 COMPANY (TOSCO) – FERNDALE REFINERY
NPDES PERMIT WA 000298-4

January 22, 2002

Public notice for issuance of the Tosco Corporation (Phillips Petroleum Company) Ferndale Refinery NPDES Permit was published on November 7, 2001 with a closing date of January 6, 2002. Comments were received by Ecology through January 11, 2002. As a time and space saving measure, some of the comments have been combined and summarized.

Changes have been made to the permit, where appropriate, to address the comments and to improve clarity. Changes made are discussed in the response to comments.

A copy of this response to comments is being sent to each individual who provided written comment or to any person who indicates their desire to have a copy upon issuance. The original comment letters are available for public review at Ecology's office in Lacey. Anyone interested in obtaining a copy of the full text of the comments or of a particular comment should call Ewa Kotwicka at (360) 407-6945.

- Comments from ReSources For Sustainable Communities

Comment # 1

We continue to register our concerns in regard to the inadequacy of AKART as addressed in effluent guidelines for the petroleum industry. As a result of increases in crude throughput at refineries, incremental increases in effluent pollutant loading are permitted over time. Reasonable measures such as operational adjustments, minor modification of retention times or hydraulic capacity could provide additional wastewater treatment to offset pollutant loads due to production increases. However, while a great deal of economic incentive exists to increase production there is no incentive for a refinery to use innovative techniques to upgrade or increase the capacity of wastewater treatment systems because the AKART determinations are based on old technologies and result in high permit limits.

While we acknowledge that Ecology follows federal effluent guidelines, this draft permit fails to address cumulative impacts of permitted incremental increases in pollutant loading to receiving waters.

Additionally, a review of discharge monitoring reports throughout the petroleum refining industry shows that refineries are consistently out-performing their permit limitations, especially in the past 7 years or so, and often by a factor of 10. This begs the question: why is Ecology wedded to outdated AKART determinations simply because the federal government has not changed its guidance for the technology basis of this industry? By creating AKART determinations, the state acknowledges that there are cases where we need more stringent guidelines than the federal government offers. Given that the EPA has not promulgated new regulations for refineries in 17 years, and given that the refineries in Washington consistently out-perform these guidelines, it is obvious that the state must move ahead with new AKART determinations for the refineries of the state.

Response # 1

Ecology has made an engineering judgment that the federal effluent guidelines in combination with the other NPDES permit conditions meet the requirements of AKART for the Ferndale Refinery. This draft permit does address any cumulative impacts of incremental increases in pollutant loading to the receiving waters by 1.) evaluating the reasonable potential to exceed the Water Quality Standards (WQS) with current representative sampling results, 2.) by including chemical, physical and biological monitoring and reporting requirements.

Ecology acknowledges that the federal effluent guidelines for petroleum refining were promulgated in 1982. Ecology's process in cases where the effluent guidelines are over 5 years old is to review the EPA development document and compare the production processes, the pollutants generated, the treatment efficiencies and review unit process design. This process is to verify that the effluent guidelines meet the intent of RCW 90.48.520 (AKART). In preparation of this permit, Ecology compared current information on the Ferndale Refinery with the data that formed the basis for the existing guidelines.

In addition, EPA in 1996 completed a study of the petroleum refining industry (EPA-821-R-96-015) including treatment technologies, pollutants discharged, pollutant loadings, and potential water quality impacts. Based on this review, the petroleum refining industry was not selected as a candidate for revised effluent guidelines in EPA's biennial plan for 1998 through 1999. EPA determined that the best treatment technology currently available is essentially the same as that applied at the time the effluent guidelines were originally promulgated.

EPA determined that if the wastewater treatment systems at the refineries are properly operated and maintained, priority pollutants will be removed or treated to negligible or below detectable levels.

It is Ecology's determination that the Ferndale Refinery is applying AKART in treating their wastewater. Ecology made that determination through an analysis of current refinery conditions and comparison to the effluent guidelines development document. EPA's study conclusions also support Ecology's determination.

Ecology has also applied new source performance standards on the basis of AKART, which makes the refinery limitations more stringent than those in other states. The more stringent new source performance standards have been applied to all crude throughput increases since 1984.

The permit includes a Treatment Efficiency Study and a Pollution Prevention Plan which will provide additional information to the Department and help determine if a new AKART determination is necessary.

The Treatment Efficiency Study requires that the refinery submit an engineering report that provides predicted design capacities for their wastewater treatment system based upon current operating conditions. This permit condition also requires the refinery to collect additional treatment unit influent and effluent data. The data will be evaluated to determine current treatment unit operating efficiencies. This permit condition will ensure that the refinery is continuing to apply AKART to their wastewater.

The Pollution Prevention Plan focuses on ways to reduce the impact of contaminants on the wastewater treatment system, and ultimately on the receiving water environment. Emphasis must be placed on actions that will reduce or eliminate PBTs (persistent, bioaccumulative and/or toxic chemicals), reduce impacts to process water or stormwater, eliminate or reduce pollutants that "pass through" the treatment system with little or no treatment, and/or reduce or eliminate pollutants that adversely affect the receiving water or sediments.

Comment # 2

We are concerned that these permits have effluent limitations so much higher than actual refinery performance, that the door is opened for these facilities to go backwards, leading to degradation to the waters of the state in comparison to the existing conditions. If a facility begins to discharge more pollutants than it has in the past years, might this not be construed as backsliding, even if they stay within legal limits of the permit?

Response # 2

Backsliding is generally viewed as the relaxation of a permit limit or requirement. Operating within the confines of the permit limits would not be backsliding. As part of the permit requirements, the permittee must update and follow their Treatment System Operating Plan. This prevents the facility in running their treatment system poorly and going backwards by reducing the efficiency of their wastewater treatment. There are numerous factors which may result in the increase of a pollutant in the wastewater effluent (i.e. more contaminants in the crude oil) and are allowable under the NPDES permit program.

Comment # 3

We are concerned about what appears to be an assumption that feedstock rates and pollutant levels are correlated and that permit limits should be based on feedstock. While we recognize that this is the regulatory basis for setting permit limits as determined by the EPA, our analysis of the DMR data shows that this correlation does not exist. There is no correlation between the feedstock rate and any of the permittees discharges (r values close to 0). This is very interesting and flies in the face of what appears to be a primary assumption of this permit as well as possibly every refinery permit. In effect, this assumption allows the plant (and every refinery in the state) to operate with a huge margin for excess discharge. We encourage Ecology to re-assess the way permit limits for refineries are determined, and force down the limits in all categories.

Response # 3

As you have stated, the regulatory basis for setting technology-based permit limits for the oil refining industry, as determined by EPA, is crude feedstock rates. Since the Washington's NPDES permit program is federally delegated program and Ecology has decided to rely on EPA's guidance, any analysis which disproves the basis of the federal guidelines (i.e. no correlation between feedstock rate and discharge) should be forwarded to the EPA Headquarters' Office of Water Programs for their review. We would be happy to meet with you and explain how the guidelines and limits were developed.

Comment # 4

Interestingly, there is a correlation between flow rate and the level of pollutants. This correlation is strongest for phenols, COD and oil/grease. There is also a correlation between COD and TSS, leading one to conclude that the solids in the effluent have a lot of carbon associated with them.

This would appear to indicate that the permittee's treatment system is stressed - particularly for removing things that aren't biologically degradable, such as high molecular weight hydrocarbons. Higher molecular weight hydrocarbons exhibit properties that make them problematic as ecological health threats and as serious challenges to water treatment control and monitoring. These compounds tend to be toxic, persistent in the benthic marine environment and they also tend to bioaccumulate. Their resistance to biodegradation also poses a serious challenge to biological-based treatment technologies. Furthermore, the high molecular weight PAHs are relatively insoluble, preferring to bond to particulate matter in a waste stream. This property poses a challenge to typical monitoring schemes, as they are focused on detecting contaminants in the wastewater. Analytical techniques specified in the permit may not be up to the challenge of accurately characterizing particle-bound toxic compounds in the discharge.

Moreover, there are analytical problems associated with characterizing wastewater samples for particle-bound PAHs. Some laboratories settle or filter wastewater samples prior to extracting and analyzing samples for PAH, excluding a significant portion of the particles which may harbor the PAHs from the fraction of the sample analyzed. Although standard methods for analyzing wastewater may not call for this preparatory step, labs can use their discretion to do this based on the sensitivity of instruments to particulate matter and the interferences that particulates may cause in the analysis.

It is our belief that it is in the solids where the smoking gun of pollution from refineries hides. Analytical methods that analyze the constituents of the solids in effluent must be employed before this becomes a sediment contamination issue.

Response # 3

At the Ferndale Refinery, the flow rate is most affected by storm events and some but in lesser magnitude by crude feedstock rates. Ecology has no information that high molecular weight hydrocarbons are a problem at the refinery. In fact, we have data from the early 90's that showed very little or no PAHs in the refinery effluents. However, sampling requirements under the Human Health Criteria Monitoring and the permit renewal application testing will give Ecology additional information to evaluate if high molecular weight hydrocarbons are present in a significant concentration. The Treatment Efficiency Study will give information regarding any stress on the treatment system. Specific analytical methods and laboratory accreditation are required by this permit. Non-standardized sampling and analytical methods are not allowed without Department approval.

Comment # 4

It appears that the limits for total and hexavalent chromium have been increased over and above the proportionate increases as given by the increase in production rate. The table below details the allowable limits given in the 1990 permit, the proposed permit, and % differential from proportional increases.

	I. 1990 permit **actual feedstock:** ***74,600*** Monthly Average	Daily Maximum	**II. 2001 permit** **actual feedstock: 89,500** Monthly Average	Daily Maximum	**III. If increases were proportional, according to actual feedstock** Monthly Average	Daily Maximum	**IV. % differential from proportional increases and proposed 2001 limits** Monthly Average	Daily Maximum
Total Chromium (lbs/day)	2.9	7.7	5.9	10	3.5	9.2	**+41**	**+8**
Hex. Chromium (lbs/day)	0.2	0.5	0.37	0.81	0.24	0.60	**35**	**26**

It is stated in the Fact Sheet accompanying this permit that chromium is no longer used at this facility, which make this increase all the more puzzling. We understand that chromium is a constituent of crude oil, and that technology-based limits may be necessary for these pollutants. It is not, however, allowable for either mass or concentration limits to be raised from the last permit. This constitutes backsliding under the Clean Water Act. Any limits for these parameters must be equal to or less than the previous permit limits. Adjusting for the proportional increase due to the increase in feedstock, we believe that the numbers in column III. above, are the appropriate ones to use in setting these limits.

Response # 4

Chromium is a contaminate of crude oil and it does not constitute backsliding to increase the permit limit due to increased feedstock throughput. The new permit limits that allow for the increase in feedstock are calculated using EPA's guidelines and Best Practicable Technology (BPT).

Comment # 5

The footnote on page 9 of the permit allows for large variations in pH. We understand that this clause is meant to encourage continuous monitoring of pH, but do not feel that such a wide range should be allowed.

Further, there is no basis in the WAC for allowing pH excursions of this sort.

We suggest this requirement be tightened with the following language: "provided no single excursion exceeds 30 minutes in length, cumulative excursions per day do not exceed 60 minutes in length, and total excursions do not exceed 3 hours per month."

Response # 5

This provision is found in 40 CFR Part 401.17 and has been included in most of the water permits for discharges to marine waters for permittees with continuous monitoring for pH. It is not meant to encourage continuous monitoring but rather it recognizes the instrumentation problems that can occur with continuous monitoring of pH and allows for some "down time" to replace a probe, recalibrate and do standard checks. It has been Ecology's field experience that the buffering capacity of marine water is very large and that pH impacts cannot be measured in the receiving environment when discharges meet the technology-based pH standards of the range of 6 - 9. Ecology believes this provision is protective of the receiving environment.

Comment # 6

There are questions about the impact of replacing the existing Thermofor Catalytic Cracking Unit (TCCU) with a Fluidized Catalytic Cracking Unit (FCCU). It seems that this may result in an increase in cyanide loading. We concur with Ecology over the necessity of requiring additional cyanide monitoring to accurately determine the extent of this additional pollutant loading, if any. It does not appear that Ecology is certain that this change may not result in higher values for BOD, phenolics, NH3, and Sulfide. The fact sheet indicates that the last time any of this data was gathered was in 1991. There have been many changes at the facility since that time, leading to significant pollutant reduction in the past seven years. How can we assess changes due to the FCCU startup when we have no real sense of the nature of the current effluent? We suggest that a full effluent characterization be conducted within the first year of the permit, before installation of the FCCU. Then, the monitoring frequency for the above mentioned pollutants should be increased when the FCCU is installed. This increased monitoring should continue for at least one year.

As well, the wastewater characterization conducted in 1994 is lacking in metals data. Only one sample was taken in most cases. The potential for these metals to be found in refinery wastewater is explicitly stated in the Fact Sheet. The detection limits given for metals are inordinately high. The detection limits given in Appendix A of the permit are an order of magnitude lower in most cases.

This further reiterates the need for a new effluent characterization, to be conducted in the first year of the permit, with another conducted at the end of the permit term.

Response # 6

The fact sheet (Appendix D) includes sampling results for BOD, COD, TSS, Oil and Grease, NH3, Phenol, Sulfide, Total and Hexavalent Chromium, Fecal Coliform, and pH from January 1991 to March 2001. This data will be used to compare with sample results after the FCCU startup. At that time Ecology will be able to evaluate any changes in the pollutant loading. Besides the 1994 data, there is additional metals analysis results listed in the fact sheet (Appendix F) through 1999, with a minimum of 16 sampling events. Much of this data is sample collected and analyzed by Ecology. Additional metal analysis has been completed since 1999. Effluent recharacterization will be initiated 18 months after the issuance of the renewed permit. This will coincide with the shutdown of the TCCU and of the startup of the FCCU. Ecology does not see the need to change these conditions.

Comment # 7

S1C: Ballast and Stormwater Allocation. We have a number of concerns about this section of the permit. It seems that there is little real tracking of stormwater. The flows cited in this permit are estimates only. This is a serious issue, given that the permit limitations for stormwater are expressed in terms of pounds per million gallons. We believe that the average dry flow of 1.25 mgd used to estimate the total amount of stormwater at the facility may be low. This belief is based on an examination of flow data in the facility's DMRs. Since there are no accurate data on stormwater upon which to base these permit limits, we suggest that Ecology require a study that would more accurately measure total rainfall, surface area of the facility, and total stormwater flow throughout at least one year, preferably two. Such a study should be required of all permittees that are given stormwater allocations.

Response # 7

The 1.25 mgd average dry weather flow was calculated using actual daily effluent flows and not including flows for any storm event where the rainfall was greater than 0.01 inches in a 24-hour period. In the reissued permit, the refinery will be required to monitor both flow and rainfall daily.

Comment # 8

Additionally, we are uncomfortable with the blanket use of the stormwater allocation anytime when there has been measurable rainfall in the past seven days.

Does this mean that a facility can discharge 2 million gallons of stormwater, even though it has only rained one-tenth of an inch? Obviously, this stipulation opens the possibility of abuse. There have been cases at other refineries, where this clause has been used to artificially lower pollutant concentrations (by flushing the hydrants on a dry weather day and claiming this as stormwater allocation, for example). We believe that the stormwater allocation should be, in a best case, correlated to the amount of rainfall. If that is not feasible, then the allocation should only be allowed if there has been measurable rainfall, in excess of a given amount, within the past 2 days.

Response # 8

In order to use the stormwater allocation, the permittee must submit to the Department supporting data (i.e. rainfall data and stormwater inventory) and the Department will determine if the use of the stormwater allocation is appropriate. The Ferndale Refinery has the capability to store excess stormwater and release it over a longer period than 2 days after a measurable rainfall event, so your suggestion would not work for this permit.

Comment # 9

We also believe that granting the use of the stormwater allocation at any time from November through May is unfounded. There are often long stretches of time during the winter months where it does not rain very much at all. Today is January 4; it has hardly rained in Whatcom County for weeks. The permittee should have to document rainfall every time the stormwater allocation is used.

Response # 9

The permittee is required to report daily rainfall. Any time a permittee wants to use the stormwater allocation, the permittee must submit to the Department supporting data (i.e. rainfall data) and the Department will determine if the use of the stormwater allocation is appropriate. Historically, the permittee has only used this allowance a couple of days in the last five years.

Comment # 10

We are also very concerned about the stormwater issuing from Outfall #002. The Fact Sheet states that this outfall drains the only stormwater on site likely to come into contact with industrial processes. We are especially concerned by the wastewater characterization for this outfall presented in the Fact Sheet.

If this stormwater is "clean" and does not come in contact with industrial process water, then how could there possibly be a temperature reading of 43 degree C? No natural process or climatic change could account for scaldingly hot stormwater. Yet, this is the only stormwater on site that does not receive any treatment or retention. We do not agree that treatment occurs through natural processes as this stormwater makes its way to its final destination in Lummi Bay. While some biological activity and filtration may indeed happen during water movement through ditches, this cannot be equated to treatment. As well, Lummi Bay is not an appropriate site for this discharge, particularly given that it may contain constituents consistent with industrial effluent. This is a shallow, intertidal environment that does not provide the sort of flushing that can be expected from a deep-water outfall located in the Strait of Georgia. Additionally, the Lummi Nation has shellfish beds in the vicinity of this stormwater outfall, potentially posing a risk to human health. This outfall should be re-routed to co-mingle with the rest of the storm and process water from the facility, allowing for real treatment of this stormwater and its discharge to a more appropriate location.

Response # 10

Thank you for bring to our attention the 43 ^{o} C temperature reading reference in the fact sheet. This was a typographical error and should have read 43 ^{o} F. We will correct this in the fact sheet. Biological activity and physical filtration does occur for this stormwater discharge both on refinery property in a woodlands area before it exits under Slater Road and throughout the drainage system before it enters Lummi Bay.

The reason this outfall qualifies as stormwater associated with industrial activities is that this outfall includes drainage from a closed inert fill and grade area, a couple of areas where historically some crude oil or other hydrocarbons were previously spilled, and stormwater drainage from an equipment storage yard. All stormwater from the process areas and products storage area are collected and go to Outfall 001. About 38 percent of the stormwater flow comes from up gradient of the refinery and is stormwater off of pasturelands. It is estimated based on a 20 minute rainfall flow sampling that 0.01 inches of rainfall would produce about 4.0 mgd of stormwater.

It is assumed that about 66 percent the rainfall goes through the Slater Road culvert or in this case 2.7 mgd. The co-mingling of this with other stormwater and process wastewater would not be hydraulically possible for Outfall 001.

Comment # 11

WAC 173-201A-100 (4) states "No mixing zone shall be granted unless supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health as determined by the department." Upon reading this section of the WAC, I contacted the Department of Ecology to request the supporting documentation that was used in determining the appropriateness of granting a mixing zone for this discharge. I was told that there was no application process for an industrial discharger, nor was there any supporting documentation filed. I was told that the granting of a mixing zone is routine and is done because mixing zones are allowed in the WAC and have been granted in past permits. The location of this discharge is well-known as an important spawning area for the sensitive species Pacific herring. The herring that spawn at Cherry Point are an important and unusual population because they spawn later than other Puget Sound herring. This population historically produced up to 80% of the herring in the entire Puget Sound food chain. Its numbers have, however, plummeted in the past 30 years. Studies of this population have found high embryo mortality and mutagenic effects, such as up to 80% of the embryos hatching with out an egg sac and a high percentage of skeletal abnormalities (Kozan). Toxicity from the effluents at Cherry Point was cited as one of the potential causes of these effects. Until the causes of these effects are known, we believe that it would be difficult for the Department to defend granting a mixing zone with no background documentation. If no supporting information has been filed to clearly indicate that the mixing zone will not adversely affect this important habitat and this cornerstone species, then, clearly the above cited section of the WAC has been violated.
The Department must require supporting documentation and make a judgment of the appropriateness of this mixing zone based on this documentation, not on past practice or habit, or the Department may not grant dilution.

Response # 11

There is no evidence that industrial effluent is causing the adverse effects on Pacific herring cited above. The Cherry Point Herring Workgroup has identified a number of stressors and natural conditions that may be working independently or in concert with each other to cause this effect on the herring decline.

Ecology has evaluated the effluent for the reasonable potential to exceed the Water Quality Standards (WQS) for both the ALC (aquatic life criteria) and the HHC (human health criteria). Ecology also evaluated results of previous effluent bioassays and sediment studies. Using this information and WAC 173-201A, Ecology made a determination to allow for a mixing zone.

The Acute and Chronic Toxicity testing and the Herring Embryo and Larval Toxicity testing requirements contained in the reissued permit will give more information on if and how the final effluent is affecting the herring at Cherry Point. Ecology does not plan to eliminate the mixing zone allowance at this time.

Comment # 12

We are pleased to see that Ecology is requiring toxicity testing for this sensitive species. These tests, along with those conducted by other dischargers, will help assess the true impacts of these effluents on the development of embryos and to the adult spawners. These tests may also help us to understand the sub-lethal effects of these effluents on this species.

Response # 12

Your comment here supports Ecology response to the previous comment (# 11).

- Comments from Phillips 66 Company (Tosco)

Comment # 13

In the draft permit, it states that the monitoring frequency for Fecal Coliform is being reduced to 3 times/week as a result of consistent performance well below the technical limits. Please note that Ecology granted the refinery in a letter dated May 3, 1991, a monitoring frequency for Fecal Coliform of 2 times/week.

In light of this fact and Ferndale Refinery's good performance regarding this parameter, we request that the monitoring frequency for Fecal Coliform be set in the renewed NPDES Permit at 2 times/week or less.

Response # 13

Ecology has reviewed this additional information and concurs with the request to set the monitoring frequency for Fecal Coliform at 2 times/week in the renewed permit.

Comment # 14

We disagree that the 1.25 million gallons/day (MMGPD) is a realistic 'dry weather flow' for the Ferndale Refinery when operating at a crude rate of 89,500 barrels/day (B/D). We believe that the data better supports a 'dry weather flow' equal to 1.20 MMGPD.

Response # 14

Ecology believes the 1.25 MMGPD 'dry weather flow' is a good number based on actual flow and rainfall data and will not change the 'dry weather flow' to 1.20 MMGPD. Also see Response # 7.

- Comments from Department of Natural Resources

Comment # 15

I'd like to thank Ecology for the role you have played in reducing the process wastewater from the facility. I was also pleased to see that a water-oriented pollution prevention plan is a condition of the proposed permit. The more pollution that can be prevented in the first place, the fewer biological impacts we need to worry about to aquatic resources.

In addition to pollution prevention, we would like to encourage Ecology to continue working with industrial facilities to upgrade equipment and to improve spill prevention as other ways to minimize impacts on aquatic resources.

Response # 15

Thanks for your comment and Ecology will continue to look for ways to eliminate or minimize pollution.

Comment # 16

On pages 29-30 of the fact sheet, you explain that potential toxicity was also found in the sediments at Tosco, and that as a result the company will be required to do a sediment recharacterization study. You also say that "A condition has been placed in the proposed permit which requires the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments." I'm pleased to see this permit condition included, since it will help assure that impacts to state-owned aquatic land are minimized. We would be very interested in the results of the sediment recharacterization study.

What is the "working" length of the permit cycle? When do you anticipate that results of the sediment recharacterization study will be available? Where exactly was the potentially contaminated sample found?

Response # 16

Typically a permit cycle lasts for five (5) years. The permittee is required to submit an Application for Permit Renewal 180 days before the 5 year expiration date. As long as an application is submitted by the permittee, the current permit remains in effect until Ecology reissues the permit.

In the last few years, due to workload and staffing the permit development and reissuance has take one to two years. So the working length of a permit cycle can be five to eight years. The results of the sediment sampling will probably be available in the fall of the second year of the reissued permit. The location of the sample which showed a statistically significant result for survival and larval development of *Dendraster excentricus* was from a composite of five sediment samples along an east to west transect 200 feet down-current of Outfall 001 (see attachment)

- Comments from Lummi Nation's Natural Resources Department

Comment # 17

As you know, the Tosco Refinery is located along a biologically unique and sensitive shoreline that is home to spawning herring, sandlance, and surf smelt. It is also a major migratory and feeding corridor for juvenile salmon. Herring and other baitfish species provide the major portion of the diet for juvenile salmonids during this rapid growth period of their marine life history, which is critical for their survival. Recent Endangered Species Act (ESA) listings for Nooksack River salmon stocks require that we take significant and immediate steps towards preventing further declines and possible extinction of these stocks.

Our Natural Resources Department is presently involved in promoting several habitat restoration and pollution prevention programs that focus on providing benefits to these ESA listed stocks. Over the years the Lummi Nation has severely curtailed commercial fisheries and eliminated others to allow depressed populations of herring and salmon to rebuild. These traditional fisheries have been the lifeblood of tribal families that have relied on this source of income for generations. Tribal hatchery programs are also being impacted by ESA requirements that will likely result in further reductions in available commercial harvest. We believe that industry and others must also take significant and meaningful steps to protect these irreplaceable marine resources.

The Lummi Nation therefore requests that Ecology take extraordinary measures in this permit action to reduce and prevent impacts to these seriously depressed stocks.

This NPDES permit, as written, is essentially one that relies on self-monitoring. This approach allows the permittee to choose, with few restrictions, the time and location of sample collection. We believe this has resulted in non-representative sampling. The Lummi Nation has in the past, and now again, requests that Ecology develop a sampling plan that assures randomized sampling.

Ecology staff to the extent possible, with unannounced visits, should be responsible for collecting the samples required under this permit.

Response # 20

Given limited staff and resources available to the Department of Ecology for environmental protection, self-monitoring with 24-hour composite samplers is the best that Ecology can do at this time. The refinery's wastewater treatment system has a 4 to 5 day retention time depending on process stormwater flow. Due to the size and volume of the wastewater treatment ponds and the 24-hour per day continuous process operation, it is very unlikely that there would be large variations in pollutant loading over a 24-hour period. Ecology does conduct unannounced inspections once to twice per year and collects wastewater samples at that time. These samples are split with the permittee for analysis and the results are compared both with the self-monitoring results and historic trends and how the permittee's laboratory performance compares with Ecology's laboratory. Each year the permittee's laboratory is also sent blind performance samples for analysis of parameters contained in the permit. This is part of Ecology's Laboratory Certification Program and helps Ecology determine if the laboratory is using good procedures and providing good analytical results. The location of the sampling points are specific and do not change. It has been determined by Ecology that these sampling points are good representations of the effluent composition.

Comment # 21

We request that Outfall 002 be re-routed into the discharge stream for Outfall 001. Outfall 002 discharges to the Lummi Bay Estuary, a shallow fragile environment without sufficient dilution flows to mitigate the damages that would result from an accidental spill or process upset. Cleanup strategies are also more difficult to implement and are not as effective in these intertidal environments. No industrial stormwater or process wastewater should be allowed to enter this small stream that enters Lummi Bay.

Any impacts from a reduction in flow to isolate this waterbody from the runoff in industrial portions of the Tosco property will be minor compared to the consequences of an accidental spill that reaches Lummi Bay. This is a serious matter that should be corrected as soon as possible.

Response # 22

Process upsets and storage tanks spills would not be directed to Outfall 002 but would go to the process wastewater system and discharged out Outfall 001. The rerouting of the stormwater that exits at the Slater Road culvert to Outfall 001 is not a viable option. Outfall 001 could not handle the hydraulic load a minor storm event would place on it.

Accidental spills could occur from trucks and equipment traveling on the access roads that traverse the drainage area or from the equipment storage area at the northeast area of the facility. There is very little industrial activity that occurs in this drainage area. Any spills would be small and would be quickly detected and contained so as to have little or no impact on the stormwater that goes to Outfall 002. As requested by the Lummi Nation in the comment below, Ecology will forward to the Ferndale Refinery your request to notify the Lummi Nation if and when any spill occurs in this stormwater drainage area that would be discharged to Outfall 002.

Comment # 23

Please notify the permittee of the following contact to notify the Lummi Nation of spills or upsets that may impact marine resources or persons living on the Lummi Reservation:

Lummi Law and Order **Office Hours - (360) 384-1489**
After Hours – 911 or
Whatcom Emergency Dispatch

This should also apply to any event that poses a risk to shellfish bed certifications or human health. The Lummi Nation operates a shellfish hatchery and has important shellfish growout beds located in Lummi Bay.

Response # 23

Your request will be sent to the permittee. There is no sanitary waste discharge to Outfall 002 and no risk of decertification due to the presence of fecal coliform. The risk from stormwater should be minimal since it is attenuated in the natural wetlands prior to discharge to the bay.

Comment # 24

The toxicity testing requirements should be more rigorous due to the close proximity of Outfall 001 to newly developing herring embryos in April, May and early June.

Toxicity testing along this shoreline in the past has suggested episodic "hits" from unknown sources near the Tosco and Intalco properties that had caused up to 100% of the test embryos to develop abnormally. Until the source of this toxicity is determined, a comprehensive and systematic investigation needs to be conducted that examines both regular and intermittent sources of pollutants from industrial process, industrial stormwater, groundwater, and other potential sources. We request that Ecology take the lead for this work using technical input from the Puget Sound Ambient Monitoring group and the Co-Manager Herring Technical Team (Washington Department of Fisheries and Tribes). The Lummi Nation could possibly provide logistical support in the way of vessels needed to collect samples or specimens.

Response # 24

This work is being conducted as funds and resources are available. This task is being coordinated by the Department of Natural Resources with the cooperation of the Department of Fisheries, the Department of Ecology and input from other experts in the field of toxicity, which as you know include the Lummi Nation representative. Ecology concurs that testing during the spawning and developmental stages of the Cherry Point Herring would be a good approach. Thank you for the offer of logistical support for vessels needed to collect samples or specimens. Ecology will make this offer known to the coordinating agency, the Department of Natural Resources.

Comment # 25

We concur with your recommendations to perform Herring Embryo and Larval tests. Despite the difficulty in obtaining test organisms, the embryo test is preferred because it is more sensitive and reflects the life-stage present along this shoreline that is most at risk. Using the herring embryo test is easier to interpret. This monitoring requirement should be expanded beyond effluent testing, to include at least two industrial stormwater sources.

The Chronic Toxicity tests should:

1. **Test industrial stormwater and contaminated marine sediments near the subject property shoreline in addition to the effluent.**

2. **Not allow composite sampling.**

3. **Be performed within 1 year of permit issuance.**

4. **Increase sampling frequency during the herring-spawning period.**

5. **Result in the analysis of at least 24 samples for each type of water source.**

6. **Use herring embryos as a test species when protocols are available.**

7. **Use the Pacific Oyster as a test species prior to availability of the herring test.**

Response # 25

The protocols are still in the developmental stage and many of your suggestions can not be accomplished or performed at this time of permitting. To respond to the above comment subparts, the cited number will be used:

1.) There may be problems using the developing protocols for testing of sediments. Currently the protocols are being developed for water testing.

2.) Grab samples will probably be the type of sample required due to holding time and freshness.

3.) The test protocols will probably not be completed and available during the first year of this permit.

4.) Increased sampling during the herring-spawning period is a good suggestion. However, with the uncertainty of the protocol test validation, logistics, and economics, it will not be feasible for a couple of years.

5.) The number of samples needed for testing will be evaluated after the initial testing and determined at that time.

6.) Ecology wants testing to be done on both the embryo and larval stages of the herring since the Cherry Point area is both a hatchery and a holding area for larval herring.

7.) Testing of the Pacific Oyster is included in the Chronic Toxicity testing requirement. There are some studies being done in California, which give reason to believe the purple urchin may be a good substitute species for the herring. If this proves to be the case, Ecology will direct the refinery to do testing using the purple urchin.

Comment # 26

The observed herring embryo toxicity was episodic which may be related to intermittent sources of toxicity. As a result, composite sampling should not be allowed in the Treatment Efficiency Study. If an increase analytical power is needed, increase the number of samples appropriately.

Response # 26

This study is designed to determine the treatment removal efficiency of the different components of the wastewater treatment system. Composite samples are good for this type of analysis.

Comment # 27

Please request Tosco send us the following reports as they become available:

Noncompliance Notification	**S3.E**
Spill Reporting System	**S3.F**
Spill Notification	**S3.F (?)**
Shellfish Protection (Notification?)	**S3.G**
Spill Plan	**S7**
Effluent Acute Toxicity Report	**S9.A**
Effluent Chronic Toxicity Report	**S9.A (B?)**
Sediment Chemistry Report	**S10**
Outfall Evaluation	**S11**
Herring Toxicity Testing	**S13**
Groundwater Impact Study Plan	**S16**
Groundwater Impact Study Report	**S16 (?)**
Reporting Anticipated Non-compliance	**G22**

Response # 27

This request will be forwarded to the Permittee.

Comment # 28

Please notify us also when the Permit is reopened.

Response # 28

Ecology will place the Lummi Nation and the Lummi Natural Resources Department on the notification and mailing list.

- Comments from Puget Soundkeeper Alliance

Comment # 29

The Puget Soundkeeper Alliance does not support the use of mixing zones to allow applicants to meet their water quality standards. We feel that the chronic and acute mixing zones in this permit are harmful to the immediate environment. We propose that Ecology remove or at least decrease the size of the mixing zone. We feel that this will better comply with the Clean Water Act and will ensure that life around the Strait of Georgia (Outfall 001) will be better protected.

Response # 29

The Department of Ecology relies on the water quality standards to assure that all aquatic resources are protected. These water quality standards include criteria for the protection of aquatic life, human health and sediment quality. Permits are often issued with mixing zones, as allowed within the water quality standards, with the understanding that exceeding the criteria within these small areas around the point of discharge will not cause any problems in the receiving environment outside the mixing zone.

Comment # 30

A major concern we have with the proposed permit is the increase in effluent limitations. A trend in this draft permit is that effluent limitations increased from the previous permit. Puget Soundkeeper Alliance wishes to understand what reason(s) influenced this decision to increase these limits.

We are concerned that with more of these contaminants accumulating in the Strait of Georgia that the water around the outfall could become more impaired. We ask that Ecology decrease the permit limits to at least the previous permit's limits if not lowering them further. We feel that this will both benefit the immediate environment as well as follow the essence of the Clean Water Act.

Response # 30

As mentioned in Response # 1, Ecology has made an engineering judgment that the federal effluent guidelines in combination with the other NPDES permit conditions meet the requirements of AKART for the Ferndale Refinery. For the oil refining industry, the regulatory basis for setting technology-based permit limits is crude feedstock throughput rates.

In the previous permit the limits were based on an actual 12-month average crude throughput rate of 74,600 barrels per day (bbls/day). This draft permit limits are based on an actual 12-month average crude throughput rate of 89,500 bbls/day. This increase in the crude throughput rate accounts for the increase in the permit limits. Ecology also evaluated the discharge to determine if there was a reasonable potential to exceed the water quality standards. The discharge does not have a reasonable potential to exceed the water quality standards.

Comment # 31

We also would like to see more stringent actions taken place by both Ecology and Tosco Corporation to curb the amount of accidental spills. Since 1995 there were 11 spills recorded. Though this number is not excessive we feel that these types of accidental spills can be prevented from occurring if Ecology is more stringent with penalties against industries that are having accidental spills. We believe, as well, that if industries were more aware of possible locations where leaks were likely to occur and troubleshooted them effectively then these leaks could be stopped ahead of time. We feel that spills can be prevented if the time and energy is spent to make sure that the technology being used is up to date and is being inspected and maintained properly.

Response # 31

Ecology has an extensive program in place to prevent and respond to spills in the event that they happen. In 1991, the legislature passed the Washington State Oil Spill Prevention Law that created the nation's first dedicated and comprehensive oil spill program. The Department of Ecology and the former Washington State Office of Marine Safety (OMS) were given responsibility for implementing the 1991 Oil Spill Prevention Law.

The Washington State Office of Marine Safety (OMS) was established to prevent oil spills by promoting maritime safety for tanker and other vessels. By law, tank vessel prevention standards were required to provide the best achievable protection of Washington's marine environment. OMS had a variety of programs to implement spill prevention. The foundation of their prevention strategy was risk identification and management. OMS program efforts included development of safe operating standards for vessels, spill prevention policies, and technical outreach materials. Tanker vessels were required to have spill prevention plans and all vessels were required to have response plans. OMS reviewed these plans and inspected vessels for compliance, provided technical assistance and enforced compliance with standards.

The 1991 Oil Spill Prevention and Response Act focused attention on prevention and response. Ecology was made responsible for developing prevention rules for oil handling facilities, reviewing prevention plans submitted by facilities, conducting inspections and drills and coordinating with other state, federal and local agencies to develop prevention plans. Ecology has adopted rules aimed at preventing spills from oil handling facilities. These rules address facility oil transfer procedures, design and operation standards for oil transfer pipelines, aboveground storage tanks and secondary containment systems. The facility oil spill prevention plan standards also require oil-handling facilities to conduct risk analyses and implement remedial measures to minimize potential for oil spills.

On July 1, 1997 the State Office of Marine Safety (OMS) merged with the Department of Ecology to form a new comprehensive spill prevention, preparedness and response program. The merger combines OMS' marine vessel safety and oil spill prevention activities with Ecology's facility oil spill prevention and statewide oil and hazardous material response and restoration program. The new program is comprised of about 55 staff including spill responders, vessel inspectors, environmental planners, engineers, and other management and support staff. The unified program enables Ecology to make better use of scarce state resources to prevent oil spills and more effectively respond to, clean up and investigate the cause of any spills that do occur.

For more information regarding Ecology’s spill program for the Ferndale Refinery please contact Gary Lee at (360) 407-6956.

In addition, the Pollution Prevention Plan requirement in this renewed permit is one of the most effective ways to ensure leaks and maintenance are adequately addressed.